भारतीयमानक
Indian Standard

IS 2725 : 2022

रेयान - उत्पादन उद्योग के लिए जल की गुणवत्ता सहिष्णुता

(पहला पुनरीक्षण)

Quality Tolerances for Water for Rayon - Manufacturing Industry

(First Revision)

ICS 13.060.01

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November 2022 **Price Group 4**

Water Quality for Industrial Purpose Sectional Committee, CHD 13

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on recommendation of the Water Quality for Industrial Purposes Sectional Committee and approval of the Chemical Division Council.

Processing in rayon-manufacturing industry is greatly affected by certain impurities present in water. This standard is intended chiefly to cover the technical provisions relating to water for rayon-manufacturing industry, and it does not include all the necessary provisions of a contract.

This standard was originally published in 1964. In this first revision, the amendments issued to the standard have been incorporated and the references have been updated. Several editorial changes as per the latest standard format have also been incorporated.

This standard is intended to guide rayon-manufacturers in judging the suitability of a particular supply of water for that industry and in planning the type of treatment required for available supplies of water.

The composition of the committee responsible for the formulation of this standard is given at Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for Rounding off Numerical Values *(second revision*)’.

Indian Standard

QUALITY TOLERANCES FOR WATER FOR RAYON — MANUFACTURING INDUSTRY

(First Revision)

1 SCOPE

This standard prescribes the quality tolerances for water used in rayon manufacturing industry.

2 REFERENCES

The standards listed below contain provisions which through reference in this text, which constitute provisions of this standard. At the time of publications, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards given below:

IS No.	*Title*
1622 : 1981	Methods of sampling and microbiological examination of water (*first revision*)
3025 (Part 4) : 2021	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 4 Colour (*second revision*)
3025 (Part 5) : 2018	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 5 Odour (*second revision*)
3025 (Part 9) : 1984	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 9 Temperature (*first revision*)
3025 (Part 10) : 1984	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 10 Turbidity (*first revision*)
3025 (Part 11) : 2021	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 11 pH value (*second revision*)
3025(Part 16) : 1984	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 16 Filterable residue (Total Dissolved Solids) (*first revision*)
3025(Part 21) : 2009	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 21 Hardness (*second revision*)
3025(Part 23) : 1986	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 23 Alkalinity (*first revision*)
3025(Part 35) : 1988	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 35 Silica(*first revision*)
3025(Part 47) : 1994	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 47 Lead (*first revision*)
3025(Part 53) : 2003	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 53 Iron (*first revision*)
3025(Part 59) : 2006	Methods of sampling and test (Physical and Chemical) for water and waste water :Part 59 Manganese (*first revision*)
17614 (Part 1) : 2021	Water Quality – Sampling :Part 1 Guidance on the design of sampling programmes and sampling techniques
17614 (Part 3) : 2021	Water Quality – Sampling :Part 3 Preservation and handling of water samples

3 TOLERANCES

3.1 Corrosivity

The water shall be non-corrosive when tested as prescribed in Annex A

3.2 Algae and Mould Spores

The water shall be free from algae and mould spores when tested as prescribed in **4** of IS 1622.

3.3 Bacteriological Quality

The bacteriological quality of water shall be such that bacteria growing on agar at 37 °C for 2 days shall not exceed 100 per ml when determined in accordance with **3.2** of IS 1622.

3.4 Odour

The odour of water shall not be disagreeable when tested as per IS 3025 (Part 5).

4 SAMPLING

Representative test samples of water shall be withdrawn as prescribed in **2** of IS 1622 and IS 17614 (Part 1) and IS 17614 (Part 3).

5 REQUIREMENTS

The water shall comply with the requirements as specified in Table 1.

TABLE 1
(*Clause* 5)

Tolerances for Rayon Manufacturing Industry

Sl No. (1)	**Characteristic** (2)	**Tolerance** (3)	**Method of Test** (4)
i)	Colour (Hazen units), *Max*	5.0	IS 3025 (Part 4)
ii)	Turbidity (silica scale units), *Max*	1.0	IS 3025 (Part 10)
iii)	Total dissolved solids, mg/l, *Max*	200	IS 3025 (Part 16)
iv)	Total alkalinity (as $CaCO_3$), mg/l, *Max*	75.0	IS 3025 (Part 23)
v)	Total hardness (as $CaCO_3$), mg/l, *Max*	5.0	IS 3025 (Part 21)
vi)	Silica (as SiO_2), mg/l, *Max*	10.0	IS 3025 (Part 35)
vii)	Iron (as Fe), mg/l, *Max*	0.05	IS 3025 (Part 53)
viii)	Manganese (as Mn), mg/l, *Max*	0.03	IS 3025 (Part 59)
ix)	Iron (as Fe) and manganese (as Mn), mg/l, added together, *Max*	0.05	IS 3025 (Part 53) IS 3025 (Part 59)
x)	Heavy metals (as Pb), mg/l, *Max*	0.01	IS 3025 (Part 47)

ANNEX A

(*Clause* 3.1)

TEST FOR CORROSIVTTY

A-1 PRINCIPLE OF THE METHOD

A-1.1 This qualitative test determines the stability of a water with respect to calcium carbonate. The *p*H of the water is determined before and after treatment with calcium carbonate. Any increase in *p*H as a result of this test indicates corrosivity.

A-1.2 If, due to non-availability of a *p*H meter, it is inconvenient to determine *p*H, the test is carried out by determining alkalinity of the water.

A-2 REAGENT

A-2.1 Precipitated Calcium Carbonate Pure

Place about 10 g of the powdered material in a 250ml glass-stoppered bottle. Wash thrice with portions of the sample to be tested, by stirring, allowing to settle for several minutes and then pouring off the supernatant liquid while still turbid.

A-3 PROCEDURE

A-3.1 Determine the *p*H or total alkalinity (*see* **A-1.2**) of the sample as prescribed in IS 3025 (Part11) or IS 3025 (Part 23).

A-3.2 Take the glass-stoppered bottle containing washed calcium carbonate (see **A-2.1**), fill it up with the sample up to 250 ml mark and insert the stopper without allowing any air bubble to remain. Shake well to bring the powder in suspension throughout the bottle and set aside. Repeat shaking at frequent intervals for about 4 hours. Finally, allow to stand overnight and then filter rapidly by decanting through a filter paper. Determine the pH or total alkalinity of the filtrate.

A-3.3 The water shall be considered non-corrosive if the pH or total alkalinity determined in **A-3.2** is not greater than that determined in **A-3.1**.

ANNEX B

(*Foreword)*

COMMITTEE COMPOSITION

Water Quality for Industrial Purpose Sectional Committee, CHD 13

Organization	*Representative(s)*
Bhabha Atomic Research Centre, Mumbai	SHRI K. P. BHATTACHARYYA **(*Chairperson*)**
Bhabha Atomic Research Centre, Mumbai	SHRI SHIVAYYANAMATH.S SHRI T. K. DEY (*Alternate*)
Bharat Heavy Electrical Limited, Thiruchirapali	SHRI SHAILENDRA KUMAR SHRI K. ANANDA BABU (*Alternate*)
Central Ground Water Board, Faridabad	DR NEELAM NIGAM SHRIMATI POOJA MEHROTRA (*Alternate*)
Central Leather Research Institute, Chennai	DR C. MURALIDHARAN DR K SRI BALA KAMESWARI (*Alternate*)
Central Pollution Control Board, New Delhi	SHRI NAZIMUDDIN SHRI VISHAL GANDHI (*Alternate*
Central Pulp and Paper Research Institute, Sharanpur	DR NITIN ENDLAY DR SANJAY TYAGI(*Alternate*)
Central Salt and Marine Chemicals Research Institute, Bhavnagar	DR SOUMYA HALDAR DR D. N. SRIVASTAVA (*Alternate*)
Confederation of Indian Industry- Triveni Water Institute	DR KAPIL K NARULA DR. SIPIKA CHAUHAN (*Alternate*)
Consumer education and Research Centre, Ahmedabad	MS ANINDITA MEHTA MS DOLLY JAIN (*Alternate*)
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CECRI, Karaikudi	DR S. VASUDEVAN DR R. MALINI (*Alternate*)
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Department of Science and Technology, New Delhi	DR NEELIMA ALAM DR SANJAI KUMAR *(Alternate*)
Delhi Jal Board	SHRI ASHUTOSH KAUSHIK
Grasim Industries Limited, Nagda	SHRI S. N. SASTRY SHRI ALOK SINGH (*Alternate*)
Indian Chemical Council	DR MRITUNJAY CHAUBEY SHRI KEDAR OKE (*Alternate*)

Organization	*Representative(s)*
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Maharashtra State Electricity Board, Chandrapur	Shri V. P. Ghodmare Shri Rajesh Dattatrayachivane (*Alternate)*
Ministry of Drinking Water and Sanitation, New Delhi	Shri D. Rajasekhar Shri Sumit Priyadarshi (*Alternate*)
Ministry of Urban Development and Poverty Alleviation, New Delhi	Dr Ramakant Ms Chaitra Devoor (*Alternate*)
National Environment Engineering Research Institute, Nagpur	Shri G. K. Khadse Dr V. Atul Maldhure (*Alternate*)
NLC Nalco India Limited, Kolkata	Dr Ashish Kumar Samaddar Shri Nadanchatterji (*Alternate*)
NTPC Limited, New Delhi	Shri L. K. Nayak Shri Ankit Verma (*Alternate*)
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The Energy and Resource Institute, New Delhi	Shri Anshuman Dr Suneel Pandey (*Alternate*)
The Fertilizer Association of India, New Delhi	Shri Manish Goswami Shri Vijay Kumar Gupta (*Alternate*)
Water and steam Chemistry Division, BARC facilities, Kalpakkam	Dr B. Anup kumar
In personal capacity	Shri D. K. Jain
In personal capacity	Dr A. Lawrence
In personal capacity	Shri R. S. Baghel
BIS Directorate General	Shri A. K. Lal, Scientist 'E' And Head (CHD) [Representing Director General (*Ex-Officio*)]

Member Secretary
Ms Shubhanjali Umrao
Scientist 'B' (CHD), BIS

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